;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

; FIle name = "temp\_loop.ncl"

; Distribution of Surface temperature & Salinity in Wando Sea

; Made by Kim.Young.Min of Chonnam National Universtiy

; Date by 2017.09.03

;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

load "$NCARG\_ROOT/lib/ncarg/nclscripts/csm/gsn\_code.ncl"

load "$NCARG\_ROOT/lib/ncarg/nclscripts/csm/gsn\_csm.ncl"

load "$NCARG\_ROOT/lib/ncarg/nclscripts/csm/contributed.ncl"

load "$NCARG\_ROOT/lib/ncarg/nclscripts/csm/shea\_util.ncl"

setvalues NhlGetWorkspaceObjectId()

 "wsMaximumSize" : 100000000

end setvalues

begin

 minlon = 126.0222

 maxlon = 127.7278

 minlat = 33.8611

 maxlat = 34.6389

;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

; Read data

;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

 f\_in = addfile("WANDO\_HYDR\_2017042500.nc","r")

 printVarSummary( f\_in )

;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

; Read Time

;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

 time = f\_in->time(0:29)

 time@units = "seconds since 2005-01-01 00:00:00"

 utc\_date = ut\_calendar(time, 0)

 utc\_yyyy = tointeger(utc\_date(:,0))

 utc\_mm = tointeger(utc\_date(:,1))

 utc\_dd = tointeger(utc\_date(:,2))

 utc\_hh = tointeger(utc\_date(:,3))

 ;utc\_hh1 =utc\_hh + 9 ; KST + 9

 date\_str = sprinti("%0.4i-", utc\_yyyy) + sprinti("%0.2i-", utc\_mm) + \

 sprinti("%0.2i ", utc\_dd) + sprinti("%0.2i:00 KST", utc\_hh)

 print(date\_str)

;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

; Read Temperature

;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

 temp = f\_in->temperature

 temp@units = "degC"

 temp@\_FillValue = -9.899999e+15

 printVarSummary( temp )

;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

; Read Salinity

;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

 sal = f\_in->salinity

 sal@units = "PSU"

 sal @\_FillValue = -9.899999e+15

 printVarSummary( sal )

 ndim = dimsizes( temp )

 print( ndim )

 dt = ndim(0)

 dy = ndim(1)

 dx = ndim(2)

 do ii = 0,dt-1

 date = sprinti("%0.4i", utc\_yyyy) + sprinti("%0.2i", utc\_mm) + \

 sprinti("%0.2i", utc\_dd) + sprinti("%0.2i", utc\_hh)

;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

; Temperature

;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

 res = True

 wks = gsn\_open\_wks("png", "Wando\_temp\_"+ date(ii)+"")

 gsn\_define\_colormap ( wks, "matlab\_jet")

 ;gsn\_reverse\_colormap(wks)

 plot = new(1, graphic)

 res = True

 res@gsnFrame = False

 res@gsnDraw = False

 res@gsnAddCyclic = False

 res@cnLevelSelectionMode = "ManualLevels"

 res@cnFillOn = True

 res@cnLinesOn = True

 res@cnLineLabelsOn = True

 res@cnLineLabelBackgroundColor = "white"

 res@cnInfoLabelOn = False

 res@cnMinLevelValF = 0.0

 res@cnMaxLevelValF = 30.0

 res@cnLevelSpacingF = 0.2

 res@lbLabelStride = 5

 res@cnLineLabelInterval = 1

 res@cnLineLabelDensityF = 2

 ;res@cnFillDrawOrder = "PreDraw"

res@mpDataBaseVersion = "HighRes"

 res@mpFillOn = True

 res@mpOutlineOn = True

 res@mpMinLatF = minlat

 res@mpMaxLatF = maxlat

 res@mpMinLonF = minlon

 res@mpMaxLonF = maxlon

 res@mpFillDrawOrder = "PostDraw"

 res@lbBoxLinesOn = False

 res@lbLabelBarOn = True

 res@lbOrientation = "Vertical"

 res@tmXTOn = False

 res@tmYROn = False

 res@tiMainString = ""

 res@tiMainOffsetYF = 0.025

 res@tiMainFontHeightF = 0.026

 res@gsnRightString = ""+date\_str(ii)+""

 res@gsnCenterString = ""

 res@gsnLeftString = "SeaWater Temperature(~S~o~N~C) [depth : 00m]"

 res@gsnStringFontHeightF = 0.015

 res@gsnMinorLatSpacing =1

 res@gsnMinorLonSpacing =1

 plot(0) = gsn\_csm\_contour\_map(wks,temp(ii,10,:,:),res)

 resP=True

 resP@gsnPanelYWhiteSpacePercent = 3

 resP@gsnPanelXWhiteSpacePercent = 5

 gsn\_panel( wks, plot, (/1,1/),resP )

;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

; Salinity

;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

 res\_sal = True

 wks\_sal = gsn\_open\_wks("png", "Wando\_sal\_"+ date(ii)+"")

 gsn\_define\_colormap ( wks\_sal, "MPL\_YlGnBu")

 ;gsn\_reverse\_colormap(wks)

 plot = new(1, graphic)

 res\_sal = True

 res\_sal@gsnFrame = False

 res\_sal@gsnDraw = False

 res\_sal@gsnAddCyclic = False

 res\_sal@cnLevelSelectionMode = "ManualLevels"

 res\_sal@cnFillOn = True

 res\_sal@cnLinesOn = True

 res\_sal@cnLineLabelsOn = True

 res\_sal@cnLineLabelBackgroundColor = "white"

 res\_sal@cnInfoLabelOn = False

 res\_sal@cnMinLevelValF = 0.0

 res\_sal@cnMaxLevelValF = 40.0

 res\_sal@cnLevelSpacingF = 2

 ;res\_sal@lbLabelStride = 5

 ;res\_sal@cnLineLabelInterval = 1

 ;res\_sal@cnLineLabelDensityF = 2

 ;res@cnFillDrawOrder = "PreDraw"

 res\_sal@mpDataBaseVersion = "HighRes"

 res\_sal@mpFillOn = True

 res\_sal@mpOutlineOn = True

 res\_sal@mpMinLatF = minlat

 res\_sal@mpMaxLatF = maxlat

 res\_sal@mpMinLonF = minlon

 res\_sal@mpMaxLonF = maxlon

 res\_sal@mpFillDrawOrder = "PostDraw"

 res\_sal@lbBoxLinesOn = False

 res\_sal@lbLabelBarOn = True

 res\_sal@lbOrientation = "Vertical"

 res\_sal@tmXTOn = False

 res\_sal@tmYROn = False

 res\_sal@tiMainString = ""

 res\_sal@tiMainOffsetYF = 0.025

 res\_sal@tiMainFontHeightF = 0.026

 res\_sal@gsnRightString = ""+date\_str(ii)+""

 res\_sal@gsnCenterString = ""

 res\_sal@gsnLeftString = "Salinity(PSU) [depth : 00m]"

 res\_sal@gsnStringFontHeightF = 0.015

 res\_sal@gsnMinorLatSpacing =1

 res\_sal@gsnMinorLonSpacing =1

 plot(0) = gsn\_csm\_contour\_map(wks\_sal,sal(ii,10,:,:),res)

 res\_salP=True

 res\_salP@gsnPanelYWhiteSpacePercent = 3

 res\_salP@gsnPanelXWhiteSpacePercent = 5

 gsn\_panel( wks\_sal, plot, (/1,1/),res\_salP )

 end do ;;; end dt

 end

;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

; timeseries.ncl

; Export timeseire of temperature about 87 Hours

;\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

load "$NCARG\_ROOT/lib/ncarg/nclscripts/csm/gsn\_code.ncl"

load "$NCARG\_ROOT/lib/ncarg/nclscripts/csm/gsn\_csm.ncl"

load "$NCARG\_ROOT/lib/ncarg/nclscripts/csm/contributed.ncl"

load "$NCARG\_ROOT/lib/ncarg/nclscripts/csm/shea\_util.ncl"

setvalues NhlGetWorkspaceObjectId()

 "wsMaximumSize" : 100000000

end setvalues

lon = 126.8500

lat = 34.1833

 f\_in = addfile("WANDO\_HYDR\_2017042500.nc","r")

 printVarSummary( f\_in )

 time = f\_in->time

 time@units = "seconds since 2005-01-01 00:00:00"

 utc\_date = ut\_calendar(time, 0)

 yyyy = tointeger(utc\_date(:,0))

 mm = tointeger(utc\_date(:,1))

 dd = tointeger(utc\_date(:,2))

 hh = tointeger(utc\_date(:,3))

 utc\_hh1 =utc\_hh + 9 ; KST + 9

 date= sprinti("%0.4i", yyyy) + sprinti("%0.2i",mm) + \

 sprinti("%0.2i ", dd) + sprinti("%0.2i:00",hh)

 temp = f\_in->temperature(:,10,{lat},{lon})

 temp@units = "degC"

 temp@\_FillValue = -9.899999e+15

 printVarSummary( temp )

 print( date )

 res = True

 wks = gsn\_open\_wks("png", "Tiemseires")

 plot = new(1, graphic)

 res = True

 res@gsnDraw = False

 res@gsnFrame = False

 res@tmYROn = False

 res@tmXTOn = False

 res@vpWidthF = 0.9

 res@vpHeightF = 0.3

 res@tiYAxisString = "Temp"

 res@tiXAxisString = "Time"

 res@trXMinF = min( date(:) )

 res@trXMaxF = max( date(:) )

 res@trYMinF = 0

 res@trYMaxF = 30

; res@trYReverse = True

 res@gsnYRefLine = 0.0

 res@gsnYRefLineColor = "black"

 res@xyMarkLineMode = "Lines"

 res@xyDashPattern = 0

 res@xyLineThickness = 3.0

 res@xyMarkers = 16

 res@xyMarkerSizes = 5

 res@xyLineColors = "red"

 res@pmLegendDisplayMode = "Always"

 res@pmLegendSide = "Bottom"

 res@pmLegendOrthogonalPosF = 0.1

 res@pmLegendParallelPosF = 0.85

 res@pmLegendWidthF = 0.1

 res@pmLegendHeightF = 0.1

 res@xyExplicitLegendLabels = (/" Mean Temp", " Mean Pressure"/)

 res@lgPerimOn = True ; turn off box around

 res@lgPerimThicknessF = 2.0

 res@lgLabelFontHeightF = 0.02 ; label font height

 res@lgPerimFill = "SolidFill"

 res@lgPerimFillColor = "white"

 resP = True

 resP@gsnPanelFigureStrings= (/"A","B"/)

 resP@amJust = "TopLeft"

 plot(0) = gsn\_csm\_xy( wks, date(:), temp(:), res )

 resP=True

 resP@gsnPanelYWhiteSpacePercent = 3

 resP@gsnPanelXWhiteSpacePercent = 5

 gsn\_panel( wks, plot, (/1,1/),resP )